Legg L, Drummond A, Langhorne P. Occupational therapy for patients with problems of daily living after stroke. Cochrane Database of Systematic Reviews 2006; Issue 4, Art # CD003585.

Design: meta-analysis of randomized clinical trials

PICOS:

- **P**atient population: patients meeting a clinical definition of stroke (focal neurological deficit due to cerebrovascular disease); trials of mixed etiology with fewer than 50% stroke patients were excluded
- **I**ntervention: Occupational therapy (OT) interventions which:
    - Focused on activities of daily living (ADL)
    - Provided by a qualified occupational therapist or under the supervision of a qualified occupational therapist
- **C**omparison interventions: Usual care or no routine OT intervention
    - Studies in which OT was part of a multidisciplinary care model were excluded and were analyzed in a separately published Cochrane review
- **O**utcomes: (1) Performance of ADL (feeding, dressing, bathing, toileting, transfers) at the end of scheduled follow-up for the study in question; (2) death or a poor outcome (deterioration of ADL, being dependent on others for ADL, or requiring institutional care at the end of follow-up)
    - Several secondary outcomes were considered, including mood, subjective health status or quality of life, patient satisfaction with care, and caregiver mood and quality of life
- **S**tudy types: Any randomized controlled trial of stroke patients (stroke definition not specified)

Study selection:

- Cochrane Stroke Group register through January 2006, MEDLINE, EMBASE, and other electronic databases; in addition, hand searches were done through July 2005 for 20 different journals, some dating as far back as 1947
- Two authors independently evaluated trials for eligibility and documented the quality of the articles
    - Quality criteria were randomization method, allocation concealment, intention-to-treat analysis, and blinding of outcome assessment
    - Sensitivity analyses were based upon these quality variables
    - Blinding and allocation concealment were clearly reported in almost all of the included trials

Pertinent results:

- 64 trials were identified for possible inclusion, but 53 were excluded; 9 studies with 1258 patients were included in the analysis\

- The Barthel Index was the most commonly reported scale for analysis of ADL; there were variations in the descriptive statistics (mean, standard deviation, median, interquartile range) reported by the trials
- 8 trials excluded patients for a variety of reasons, such as communication or cognitive difficulties, deafness, history of dementia, terminal illness, or discharge to a nursing home
- There were differences in the intensity of the OT programs; one trial provided a maximum of 3 visits, while other trials provided treatment over 6 months with sessions occurring weekly or every other week
- For the main outcome of ADL there were 8 trials with 1258 patients; because of missing data, there were 961 patients contributing to the analysis
    - Pooled results for ADL scores showed an advantage of 0.18 standard deviation in favor of OT over usual care; that is, the OT patients had ADL scores which were 0.18 SD better than the control patients
- For the main outcome of death or poor outcome, there were 7 trials with 1065 patients contributing to the analysis
    - The odds ratio for death/poor outcome was 0.67 (95% confidence interval, 0.51 to 0.87) in favor of OT
- Additional analyses were consistent in favoring OT over usual care for death and disability
    - These included sensitivity analyses, which exclude trials with uncertain quality; the estimate of effectiveness of OT was maintained under best and worst case analyses

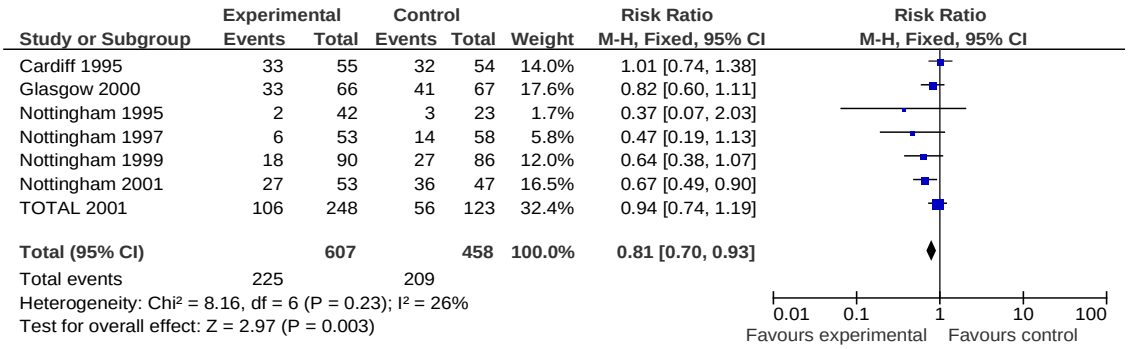
Authors' conclusions:

- OT can reduce the likelihood of deterioration of ADL in the setting of stroke
- About 11 stroke patients need to be treated with OT to prevent one functional deterioration on ADL ability

Comments:

- The literature search was more extensive than is usual in most systematic reviews; hand searching of 20 different journals dating as far back as 1947
- The number needed to treat (NNT) of 11 should be interpreted with some degree of caution, since NNT in meta-analysis may be misleading if the risk of an adverse event in the control groups varies from study to study, as is the case here
- The pooled estimate of ADL scores is 0.18 SD in favor of OT; under conventional interpretations, this is a fairly small effect
- The authors calculated a summary odds ratio of 0.67 for death/poor outcome, making it appear that the risk of a bad outcome is reduced by about 33% if OT is provided; however, odds ratios can somewhat inflate the actual risk reduction when the outcome of interest occurs much more often than 10% of the time
- The Cochrane RevMan software was used to estimate the summary risk ratio for Analysis 1.2 on page 30 for a poor outcome, and also favors OT, but the

summary odds ratio is 0.81 rather than 0.67 (a 19% risk reduction rather than a 33% risk reduction); the basic conclusions are not changed, however:



- The risk of bias appears to have been adequately controlled in the included studies, and the effect sizes are consistently in favor of OT, even though most studies effect size does cross the vertical line indicating no effect of treatment
- Although four of the OT studies came from the same group (Nottingham), which might be expected to make the results appear more homogeneous than they otherwise would be, removing these 4 studies with the RevMan software does not show any heterogeneity in the remaining studies

Assessment: High quality review which supports a statement that there is good evidence that OT provides a modest reduction in disability and risk of death following a stroke